

Forest Pest Management

Pacific Southwest Region

3420 Evaluation
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AN UPDATE OF BLISTER RUST INCIDENCE ON THE SEQUOIA NATIONAL FOREST

Report No. R96-01

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Background

The history of white pine blister rust, caused by *Cronartium ribicola*, on the Sequoia National Forest is relatively recent. The rust was first reported in the southern Sierra in the Mountain Home area in 1968. The newly found centers had originated in 1961 and intensified in 1964 and 1967. Additional surveys in 1970 found three small centers in the Tyler Meadow area of the Greenhorn Mountains, and intensification of the rust in Mountain Home State Forest and areas of the Sequoia-Kings Canyon National Parks, and the first infection center on the Sierra National Forest.

In 1983, Forest Pest Management examined 41 streamside plots (streams with sugar pine, from 1965-1972 maps, that crossed an accessible road) on the five Ranger Districts on the Sequoia National Forest. At each location, a one chain wide transect upstream, and a one chain wide transect downstream was ran, and sugar pine and blister rust infection levels were recorded. The objective was to determine the rate of establishment of new blister rust infection by scouting for the rust in locations reportedly rust-free in 1972.

In 1983, 17 of 41 streamside plots had blister rust, and 24 did not. In addition, no blister rust was found on the Cannell Meadow Ranger District, and only limited rust was found on the Hume Lake Ranger District. (see Forest Pest Management Report No. 84-22, "A biological evaluation of white pine blister rust on the Sequoia National Forest"). A conclusion of the 1983 survey was that blister rust was not yet stabilized in the southern Sierra, and that it was still spreading to favorable micro-sites since its first report in 1968.



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1995 Survey

In 1995, Forest Pest Management re-visited 13 of the 24 plots that were free of blister rust in 1983, and conducted roadside surveys of other areas that were reported rust free in 1983. The objective was to update the incidence of blister rust on the Sequoia National Forest and the southern Sierra since last formally surveyed.

Results

Results are presented in tabular form in Table 1. Six of the 13 plots that were free of blister rust in 1983 now have blister rust present. The Poison Meadow Creek drainage on the Cannell Meadow Ranger District is now infested. On the Hume Lake Ranger District, the rust was found at only 2 of 10 streamside plots in 1983, in spite the abundance of sugar pine and *Ribes* in micro-sites apparently favorable for the rust; the rust is now common on the District and present in most wet meadow sites.

The southern extent of the rust on sugar pine in the Sierra Nevada was at the head of Bear Creek drainage on the Greenhorn Ranger District. This is approximately the same location where the southern extent was noted in 1983. One *Ribes* leaf with rust sporulating was found near Breckenridge campground, somewhat south of, and isolated from, Bear Creek. As it is possible that the rust observed is pinyon rust (*Cronartium occidentale*), the sample was given to U.C. Berkeley for rust species identification. In the fall of 1993, roadside surveys for rust-infected sugar pines were conducted by FPM and CDF in the Tehachapies, and on the San Bernardino, Angeles, and Los Padres National Forests. Although numerous locations with suitable conditions (the presence of sugar pine and *Ribes* in moist environments) were observed, no blister rust was found.

Conclusions

Several conclusions from the 1995 update can be made. First, white pine blister rust is still not stabilized in the southern Sierra; it is still spreading to favorable micro-sites. From the original reports in the Mountain Home area, the rust has spread east to the Cannell Meadow Ranger District and north to the Hume Lake Ranger District. Since the first reports of the rust in the southern Sierra were in the late 1960s, only 30 years ago, this is not surprising. Second, the southern extent of the rust on sugar pine in the Sierra, based on limited observations, is apparently the Bear Creek drainage on the Greenhorn Ranger District.

Table 1. Blister rust incidence on the Sequoia National Forest, 1983 vs. 1995.

Hume Lake Ranger District

Streamside Plots:

1983 – rust observed at 2 of 10 locations

1995 – re-visited 2 of the 8 locations that were rust-free in 1983; both (Verplank, Converse) had rust present

Observations: Rust common in all wet meadow areas; high incidence in the Chicago Stump area; rust present along highway 180 between entrance station to Park and Grant Grove visitor center.

Tule River Ranger District

Streamside Plots and Observations:

1983 – rust observed at 3 of 4 locations, and common elsewhere on the District

1995 – did not re-visit

Hot Springs Ranger District

Streamside Plots:

1983 – rust observed at 9 of 15 locations

1995 – re-visited 4 of the 6 locations without rust in 1983; 3 (Tobias, White River, and Spear Creek) had rust, and the 4th (Bull Run) was burned in the Stormy fire.

Observations: Rust common throughout the District; branch flagging occurs high in crowns; along the road to Tiger Flat, which was rust-free in 1983, rust is now present throughout on east-facing slopes.

Cannell Meadow Ranger District

Observations:

1983 – no rust was observed in roadside survey of Alder Creek, Brush Creek, and Poison Meadow Creek drainages, Poison Meadow and Big Meadow areas, and road to Sherman pass.

1995 – drove same road systems as driven in 1983; Poison Meadow Creek drainage is now infested, with the oldest canker aged at 11 years (1984); no rust observed in other areas examined, which included high elevation pines.

Greenhorn Ranger District

Streamside Plots:

1983 – rust observed at 3 of 12 locations

1995 – re-visited 8 of the 9 locations that were rust-free in 1983; 1 (Shirley creek) had rust

Observations: Although Shirley creek is now lightly infested, much of the District remains rust-free (although, in general, sugar pine is not common on the District); the southern limit of the rust apparently remains at Bear Creek drainage, just north of Evans Flat; one rust-infected Ribes leaf was observed at Breckenridge, but rust species not yet determined.

